Lockheed Martin's Capability Assessment and CMMI[SM]

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Agenda

- Background
- Goals
- Continuous Appraisal Method (CAM)
- Key Features
- Observations from using CAM with CMMI[SM]
- Comparison of SCAMPI[SM] and CAM
- Summary

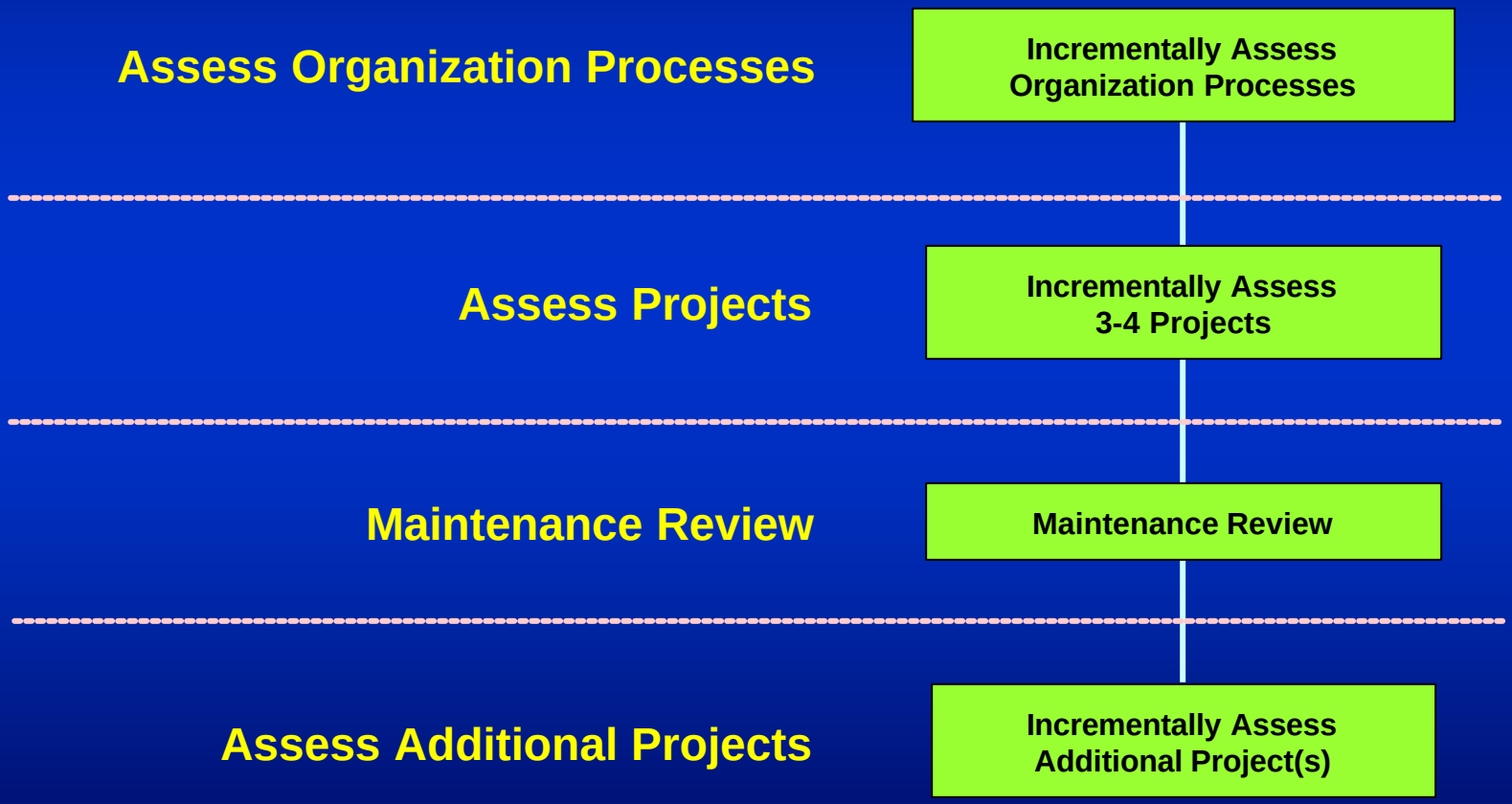
Background

- The Lockheed Martin Continuous Appraisal Method (CAM) was developed in 1999
- CAM appraises system engineering processes using EIA/IS 731.1, Systems Engineering Capability Model
- CAM has been deployed at six Lockheed Martin organizations
- CAM is being extended to be an ARC Class-A compliant assessment method using CMMI[SM]

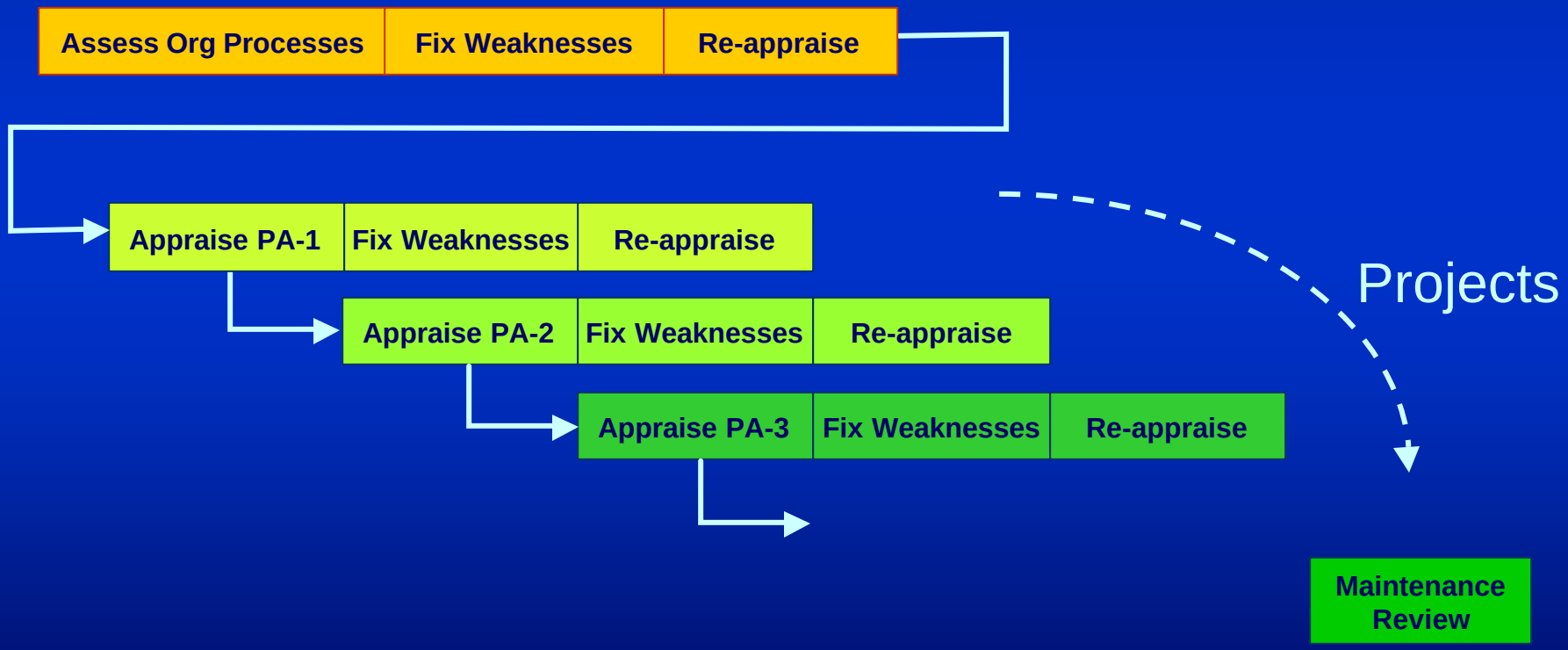
CAM Goals

- **Make assessments less expensive**
- **Make assessments less invasive to the organization and projects**
- **Help focus organizations on Continuous Process Improvement as opposed to a special event "test"**
- **Improve processes as a direct result of the assessment**
- **Promote institutionalization**

CAM Focuses on Institutionalization



CAM Involves Incremental Assessments



Key Features of CAM

- **Conducting assessment over multiple-site visits provides opportunity to correct process weaknesses (process improvement).**
- **Continuous process improvement through the use of Process Corrective Actions (PCA)**
- **Institutionalizing the organization's standard process by assessing additional projects at the completion of the initial capability or maturity level rating**

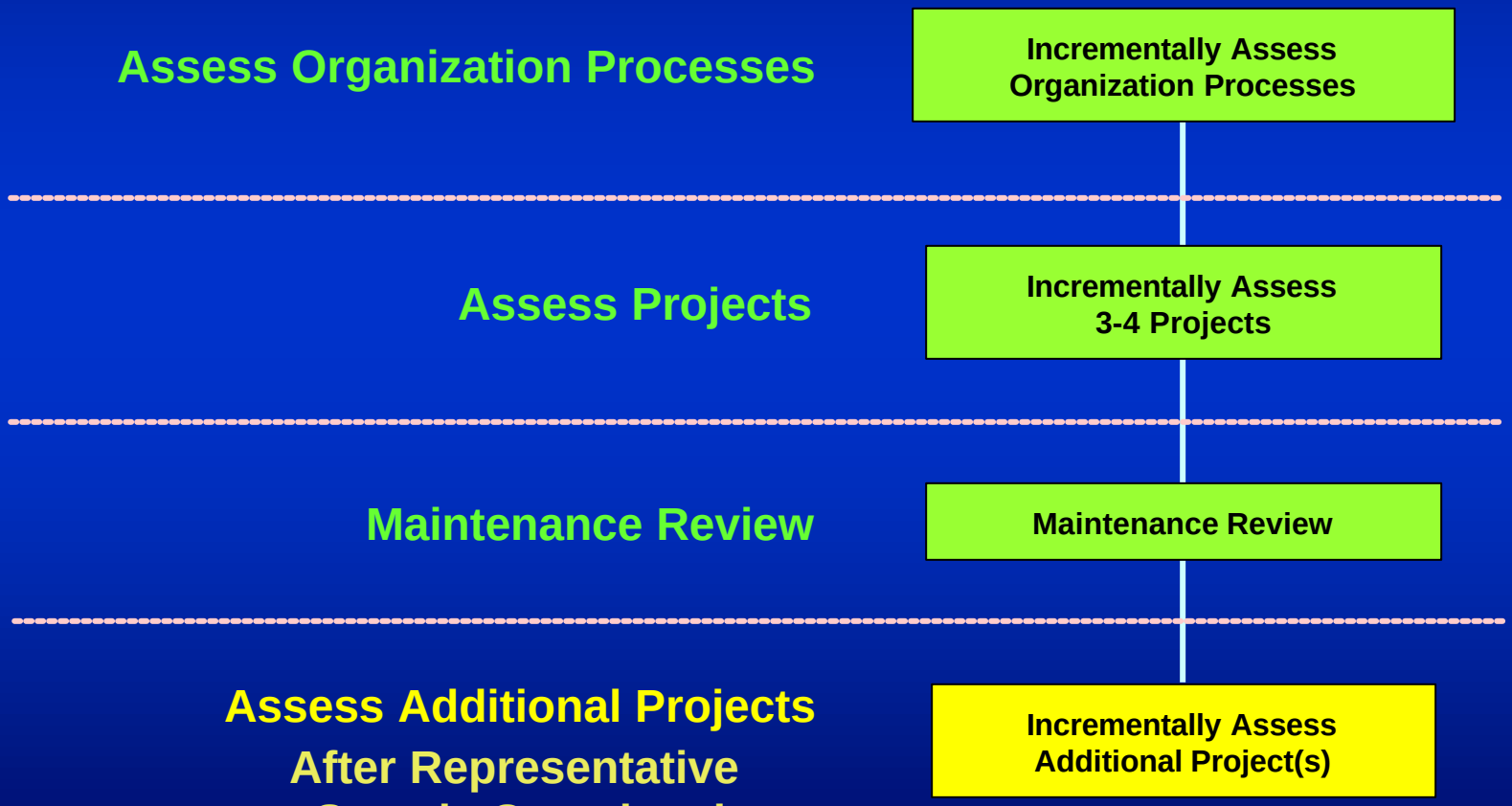
Multiple Site Visits

- **Provide flexibility in scheduling project assessments**
- **Provide time for organization/projects to correct weaknesses**
- **Allow achievement of interim ratings**
  - **To show positive results early**
  - **To track progress**

Process Corrective Action (PCA)

- **Assessment Team**
  - **Documents the weakness or process improvement opportunity using the PCA form**
  - **Obtains consensus on the PCA wording with interviewees**
  - **Reviews the PCA with interviewees to determine if the weakness or process improvement opportunity is valid**
- **Organization/Project**
  - **Addresses identified weakness or improvement opportunity**
- **Assessment Team**
  - **Assesses correction of weakness or process improvement**

CAM Focuses on Institutionalization



CAM Highlights

- Incremental assessment over 6 to 9 months
- Appraisal team typically consists of 4 people
- Organizations have minimal preparation
- Weaknesses and improvement opportunities documented and addressed as action items
- Interim ratings to track progress
- Final capability/maturity rating is determined at Maintenance Review

CMMI[SM] CAM Appraisal Observations

Lockheed Martin Naval Electronics & Surveillance Systems-Undersea Systems, Manassas, VA used CAM with CMMI[SM]-SE/SW/IPPD V1.02 during 2001

- **Experience with CAM has been positive:**
  - **More focus on Process Improvement**
    - **More value-add, in-depth findings**
    - **More active involvement by engineers and management**
    - **Participants volunteer information and implement improvements**

CMMI[SM] CAM Appraisal Observations (cont..)

- Less invasive to programs
  - Little non-value-added preparation needed (OE collection, interviews)
  - Better able to accommodate and work around program schedules
  - Better able to accommodate unanticipated changes
- Cost comparison
  - costs incurred on CAM are for different activities than CBA IPI or SCAMPI[SM]
  - Cost drivers relate to process improvement (such as addressing weaknesses) rather than administrative tasks (e.g., objective evidence cataloging)

CAM - SCAMPI^{SM} Comparison

- CAM
  - Fosters institutionalization of the organization's standard process
  - Starts when an organization DECIDES TO PREPARE for an assessment
    - 6 to 9 months to complete assessment
  - If weaknesses are not addressed within the allotted time, the Maintenance Review is rescheduled.
- SCAMPI^{SM}
  - Obtains a snap-shot of organization's process maturity
  - 6 to 9 months before an organization IS PREPARED for an assessment
  - If target rating is not achieved, entire assessment is repeated

CAM Summary

- **Less expensive**
  - **No assessment-specific objective evidence library to build**
  - **Participants don't "study for the test"**
- **Less invasive**
  - **Work around projects' schedule**
- **Focus organizations on continuous process improvement as opposed to a one-time assessment**
- **Minimal preparation time for projects**

BACKUP CHARTS

CAM versus SCAMPI^{SM} Comparison

Attribute	CAM	SCAMPI^{SM}
Duration	6-9 Months (Incremental)	Preparation 6-9 months Onsite 2-4 weeks
Institutionalization	Explicit phase of method	Not explicit part of method
Relationship to process Improvement Activities	Integral part of Diagnosing, Establishing, and Acting Phases	Diagnosing Phase
Disruption to projects	Minimal	Significant due to objective evidence preparation and interviews
Method outputs	Strengths and weaknesses identified earlier; typically more weaknesses due to non-threatening environment	Strengths and weaknesses
Cost	Lower than SCAMPI^{SM} (based on pilot use with CMMI^{SM})	High (considering preparation and 7-10 member team